**Biology Research Report Example Rubric**

*Learning outcome: Students will be able to apply and comprehend the scientific method.*

*Work product: Research Report*

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| *Learning Outcome Component* | **4** | **3** | **2** | **1** |
| **Application of scientific method to study design** |  |  |  |  |
| Selects and measures appropriate experimental factors | Selects experimental factors that are ideal to the research purpose and audience; measures adequate aspects of these selected factors | Selects experimental factors that are appropriate to the research purpose and audience; measures adequate aspects of these selected factors | Selects some experimental factors that are not appropriate to the research purpose and audience; measures adequate aspects of some of these selected factors | Selects experimental factors that are not appropriate to the research purpose; does not measure adequate aspects of these selected factors |
| Selects an appropriate sample size for the research purpose | Selects and explains appropriate sample size and equivalent groups | Selects appropriate sample size and equivalent groups, but provides no explanation | Research is weakened by inappropriate sample size | Does not consider sample size |
| Controls variables experimentally | Demonstrates, by written statement, the ability to control variables by randomization; makes reference to or implies factors to be disregarded by reference to pilot or experience | Demonstrates the ability to control important variables experimentally; methods section does not indicate knowledge of randomization or selectively disregards variables | Demonstrates the ability to control some but not all of the important variables experimentally | Demonstrates a lack of understanding about controlling variables |
| **Comprehension of findings** |  |  |  |  |
| Communicates results clearly and thoroughly | Presents data to the reader in text as well as graphic forms; tables or graphs have self-contained headings; Data reported in graphs or tables are relevant and statistically appropriate | Presents data to the reader in text as well as graphic forms; tables or graphs do not have self-contained headings; Data reported in graphs or tables contain some materials that are irrelevant or not statistically appropriate | Presents data to the reader in text, but not graphically when appropriate | Does not communicate quantifiable results |
| Interprets data accurately  | Summarizes the purpose and findings of the research; draws inferences that are consistent with the data and scientific reasoning; accepts or rejects hypothesis | Summarizes the purpose and findings of the research; draws inferences that are consistent with the data and scientific reasoning, but does not accept or reject the hypothesis; overgeneralizes to support conclusions | Summarizes the purpose and findings of the research; some inferences are not consistent with the data and scientific reasoning; does not accept or reject the hypothesis | Does not summarize or accurately interpret the results  |
| Explains findings clearly | Explains expected results and offers explanations or suggestions for further research for unexpected results | Explains expected results and offers explanations for unexpected results; does not discuss suggestions for further research  | Explains expected results but ignores unexpected results | Provides no explanation for expected or unexpected results |

Rubric is a modification of one presented by: Walvoord, B. E. & Anderson, V. J. (1998). *Effective grading: A tool for learning and assessment*. San Francisco: Jossey-Bass Publishers.